Koch, Kristine

From: Koch, Kristine
Sent: Tuesday, October 06, 2015 8:14 AM
To: James McKenna
Cc: Jennifer Woronets (jworonets@anchorqea.com); Grandinetti, Cami; Cora, Lori; Allen, Elizabeth; Bob Wyatt (rjw@nwnatural.com)
Subject: RE: Portland Harbor - Bioaccumulation Modeling Report

Jim – Can you provide me with the EPA instruction you received on this and the concerns the LWG expressed?

Thanks,

Kristine Koch
Remedial Project Manager
USEPA, Office of Environmental Cleanup

U. S. Environmental Protection Agency
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From: James McKenna [mailto:jim.mckenna@verdantllc.com]
Sent: Monday, October 05, 2015 11:07 AM
To: Koch, Kristine
Cc: Jennifer Woronets (jworonets@anchorqea.com); Grandinetti, Cami; Cora, Lori; Allen, Elizabeth; Bob Wyatt (rjw@nwnatural.com)
Subject: RE: Portland Harbor - Bioaccumulation Modeling Report

Kristine,
I confirmed with our team that we did in fact analyze the bullhead for hexachlorobenzene, but there were no detections. The basis for including the BSAFs is described in Section 4.2 of the report, including the criteria EPA instructed the LWG to use to decide when to develop a BSAF for large home range species. Here's the relevant text from that section:

> *BSAFs were developed for black crappie, northern pikeminnow, peamouth, carp, largescale sucker, and brown bullhead. BSAFs are the ratio of Study Area-wide tissue to sediment chemical concentrations. The tissue concentration was the average of available composite samples for each species, and the sediment concentration was the Study Area SWAC based on a natural neighbor interpolation. If at least one BSAR for a smaller-home-range species (Section 4.1.2) could be identified for a given chemical, then a BSAF was developed for that chemical. However, if no BSARs were identified for a chemical (due to a lack of data or inability to reasonably describe a tissue-sediment relationship, see Tables 4-1 through 4-5), then no BSAFs for large-home-range species were calculated for that chemical, to prevent BSAFs from being used inappropriately to derive PRGs when there was no evidence that reducing sediment concentration would result in lower tissue concentrations.*

Per EPA's instruction, the BSAFs were calculated for large-home-range fish whether the chemical was detected in those fish or not, if and only if we identified a BSAR for the chemical in question for smaller-home-range fish.

Hexachlorobenzene is not the only undetected chemical for which a BSAF was calculated. The table below showing detection frequencies for all of the chemical-species pairs for which BSAFs were developed (BSAFs were for large-home-range species only). Of the 19 pairs, there are 6 for which there were no detected tissue values (these are highlighted).

Chemical	Species	Detection Frequency
Antimony	Black crappie	0 / 4
Antimony	Brown bullhead	0 / 6
Antimony	Carp	3 / 15
Lead	Black crappie	1 / 4
Lead	Brown bullhead	5 / 6
Lead	Carp	15 / 15
Lead	Largescale sucker	6 / 6
Lead	Northern pikeminnow	4 / 6
Lead	Peamouth	4 / 4
Benzo(a)anthracene	Brown bullhead	0 / 6
Benzo(a)anthracene	Carp	1 / 15
Benzo(a)pyrene	Brown bullhead	0 / 6
Benzo(a)pyrene	Carp	1 / 15
Dibenzo(a,h)anthracene	Brown bullhead	0 / 6
Dibenzo(a,h)anthracene	Carp	2 / 15
TBT	Carp	9 / 9
Hexachlorobenzene	Black crappie	2 / 4
Hexachlorobenzene	Brown bullhead	0 / 6
Hexachlorobenzene	Carp	9 / 15

At the time this report was being prepared the LWG expressed concerns to EPA that BSAFs should not be calculated for chemicals not detected in a particular fish species because it results in sediment PRGs back-calculated from fish in which the chemical was not detected.

Please let us know if you need any further information or clarification on this issue. Thanks, Jim.

From: Koch, Kristine [mailto:Koch.Kristine@epa.gov]
Sent: Tuesday, September 29, 2015 4:34 PM
To: Bob Wyatt (rjw@nwnatural.com) <rjw@nwnatural.com>; James McKenna <jim.mckenna@verdantllc.com>
Cc: Jennifer Woronets (jworonets@anchorqea.com) <jworonets@anchorqea.com>; Grandinetti, Cami <Grandinetti.Cami@epa.gov>; Cora, Lori <Cora.Lori@epa.gov>; Allen, Elizabeth <allen.elizabeth@epa.gov>
Subject: Portland Harbor - Bioaccumulation Modeling Report

Bob and Jim - Table 4.6 of the LWG's Bioaccumulation Modeling Report lists BSAF equations for hexachlorobenzene in Black crappie, Brown Bullhead, and carp. However, in our review of the RI and risk assessment databases, we can find no evidence that either bullhead were ever analyzed for hexachlorobenzene, or that it was ever detected. Clearly, hexachlorobenzene was detected in fish tissue (most notably carp), and it was identified as a COC in the BHHRA for this pathway. But given that we're unable to locate any detected results in bullhead, it's not clear how the sediment tissue relationship presented in Table 4.6 was derived. We'd appreciated any clarification you could provide.

Thanks,

Kristine Koch
Remedial Project Manager
USEPA, Office of Environmental Cleanup

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